



GRADE

7

Instructional Materials

FOR THE

CRITERION REFERENCED TEST

Nevada

Grade 7

MATHEMATICS

1 Jeff sold one case of ice cream bars and one case of fruit bars.

- He sold $\frac{1}{6}$ of a case of ice cream bars every $\frac{2}{3}$ hour.
- He sold $\frac{1}{6}$ of a case of fruit bars every $\frac{1}{2}$ hour.

How much **more** time did it take Jeff to sell one case of ice cream bars than one case of fruit bars?

- A $\frac{1}{12}$ hour
- B $\frac{1}{6}$ hour
- C 1 hour
- D $1\frac{1}{3}$ hours

2 The table below shows the distances between different pairs of cities on a map and the actual distances between those cities.

Distance Between Cities

Distance on Map (in)	Actual Distance (mi)
3.5	11.2
8.75	28
10.25	32.8
15	48

What is the constant of proportionality that relates the distance between a pair of cities on the map to the actual distance between those cities?

- A 2.2
- B 2.5
- C 3.2
- D 7.7

3 Evie buys a coat that is marked down by 30% from the original price. After the markdown, the sale price of Evie's coat is \$56.00. What was the original price of the coat before the markdown?

- A \$72.80
- B \$80.00
- C \$86.00
- D \$95.20

4 Divide:

$$\left(-\frac{2}{7}\right) \div \left(\frac{3}{5}\right)$$

- A $-\frac{10}{21}$
 B $-\frac{6}{35}$
 C $\frac{6}{35}$
 D $\frac{10}{21}$

5 Evaluate:

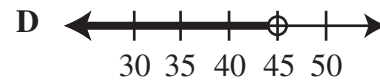
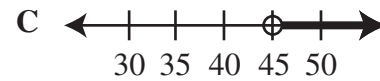
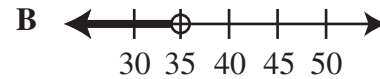
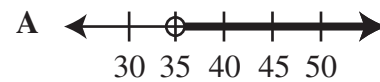
$$\left[7 + 0.25\left(-\frac{2}{3} \cdot -15\right)\right] - \frac{1}{2}$$

- A -103
 B 4
 C 9
 D 72


6 Clay will sell smoothies at a festival for \$2 each. He pays \$20 for frozen fruit and cups. The inequality below represents all of the numbers of smoothies (n) Clay could sell to earn a profit of more than \$50.


$$2n - 20 > 50$$

Which graph represents all of the numbers of smoothies Clay could sell to earn a profit of more than \$50?



7 Four line segments and their lengths are shown below.

3 cm 

8 cm 

12 cm 

15 cm 

Three of the line segments will be used to form a triangle. Which lists all of the possible groups of the lengths of the line segments that could be used to form a triangle?

- A 3 cm 12 cm 15 cm
- B 8 cm 12 cm 15 cm
- C 3 cm 8 cm 12 cm
3 cm 8 cm 15 cm
- D 3 cm 8 cm 12 cm
3 cm 8 cm 15 cm
3 cm 12 cm 15 cm
8 cm 12 cm 15 cm

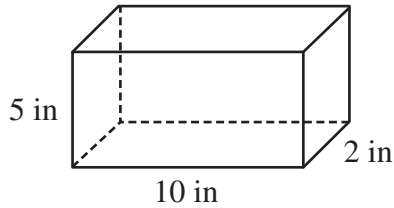
8 A 2-dimensional shape is created when a plane slices through a rectangular prism, as described below.

- The plane passes through two vertices on the top face of the prism and one vertex on the bottom face of the prism.
- The plane is **not** perpendicular to the bottom face of the prism.

Which of these could be the 2-dimensional shape created by the slice?

- A rectangle
- B rhombus
- C trapezoid
- D triangle

- 9** Brenda will paint the outside of a wooden box. The box is in the shape of a rectangular prism, as shown below.



She will not paint the bottom face of the box on which the box is sitting. What percent of the total surface area of the box will Brenda paint?

- A 87.5%
- B 85.7%
- C 80%
- D 75%

- 10** There are 9 boys and 7 girls in Mr. Langley's math class. Mr. Langley randomly selects a student to solve a problem on the board. A student can be selected more than once to solve a problem. The table below shows the number of times boys and girls have been selected to solve problems on the board so far.

Problem Solving

Group	Number of Times Selected
Boys	
Girls	

Mr. Langley randomly selects a student to solve the next problem. Which statement about the theoretical and experimental probabilities of a girl being selected to solve the next problem is true?

- A The theoretical and experimental probabilities of a girl being selected to solve the next problem are equal.
- B The theoretical and experimental probabilities of a girl being selected to solve the next problem have a sum of 1.
- C The theoretical probability of a girl being selected to solve the next problem is greater than the experimental probability of a girl being selected to solve the next problem.
- D The theoretical probability of a girl being selected to solve the next problem is less than the experimental probability of a girl being selected to solve the next problem.

Write your answer to Question 11 on a separate sheet of paper. Be sure to answer Parts A and B.

11

Theo opens a savings account at each of two different banks.

- At bank A, he deposits \$400 in an account that earns 5% simple interest.
- At bank B, he deposits \$300 in an account that also earns simple interest.

Theo does not deposit any additional money or withdraw any money from the two savings accounts.

- A** After 1 year, Theo's bank B account has earned \$4 more interest than his bank A account. What is the interest rate Theo's bank B account earns? Show your work.
- B** Theo keeps his money in these accounts until the total amount in each account is the same. What is the total amount in each account when the two amounts are the same? Show your work or explain your thinking.



Correct Answers for Multiple-Choice Items

Item Level Data

Item Number	Strand	DOK	P-value
1	3	2	0.26
2*	3	2	0.30
3	3	2	0.24
4*	1	1	0.39
5*	1	1	0.35
6*	2	2	0.38
7	4	2	0.24
8*	4	2	0.30
9	3	2	0.19
10	5	2	0.30

P-value is the proportion of students who got the item correct

*This is an item that was developed for these Instructional Materials, and it mirrors content assessed from an item field tested in the 2011-2012 test administration. The p-value and percentages reported here are based on the p-value and percentages of the item from the 2011-2012 field test.

Percentage of Students Selecting a Given Response

A	B	C	D
15%	41%	26% ✓	18%
14%	28%	30% ✓	27%
34%	24% ✓	32%	10%
39% ✓	26%	16%	18%
20%	18%	35% ✓	26%
38% ✓	16%	35%	11%
11%	24% ✓	23%	41%
25%	16%	28%	30% ✓
19% ✓	25%	38%	18%
14%	25%	30%	30% ✓

✓ = Correct Answer

Detailed objectives for Content Standards and Depth of Knowledge (DOK) descriptions can be found on the Nevada Department of Education web site.

Nevada 7 2011-12
Mathematics

Version 2 #50
Date: 1/24/12

I-Ref #:

WE: Y12_MA2910 Rpt Cat(s): 3.7.4
CCCS: 7.RP.3

Correct Answers

Part A: 8%

At bank A Theo earns \$20 in interest since:

$$I = Prt$$

$$I = 400(0.05)(1) \quad \text{or} \quad 400 \bullet 0.05 = 20$$

$$I = 20$$

At bank B he earns \$4 more, or \$24. His interest rate at bank B is 8% since:

$$I = Prt$$

$$24 = 300r(1)$$

$$\frac{24}{300} = r$$

or

$$\frac{24}{300} = 0.08$$

$$0.08 = r$$

or equivalent work

Part B: \$900

Determine the total number of years until the amount is the same in each account.

$$400 + 400(0.05)n = 300 + 300(0.08)n$$

$$400 + 20n = 300 + 24n$$

$$100 = 4n$$

$$25 = n$$

Then determine the amount in each account after 25 years.

$$400 + 400(0.05)(25) = 400 + 500 = 900$$

$$300 + 300(0.08)(25) = 300 + 600 = 900$$

OR

Theo deposited \$100 more in account A. Account B earns \$4 more interest each year.

$$100 \div 4 = 25$$

Determine the amount that will be in each account after 25 years.

$$300 + 300(0.08)(25) = 300 + 600 = 900$$

$$400 + 400(0.05)(25) = 400 + 500 = 900$$